IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Darren J. CEPULIS et al.	Confirmation No.:	4844
Serial No.:	09/965,998	Group Art Unit:	2116
Filed:	September 28, 2001	Examiner:	T. W. Chen
For:	Semi-Persistent Relocatable RAM-Based Virtual Floppy Disk Method	Docket No.:	200302230-1

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Typed Name: Mark E. Scott
Signature:

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF (37 CFR 41.37)

Mail Stop Appeal Brief – Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

April 19, 2007

Sir:

In response to the Notification of Non-Compliant Appeal Brief dated April 9, 2007, Appellants submit a revised Appeal Brief. In said Notice, the Examiner objected to Appellants' Appeal Brief filed January 30, 2007, because "the summary of claimed subject matter section does not map the independent claims on appeal (claim 17) to the specification by page, and line number and to the drawings if any." A revised Appeal Brief is submitted herewith that corrects the typographical error (claim 1 should have been claim 17).

Respectfully submitted,

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APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: January 30, 2007

Sir:

Appellants hereby submit this Appeal Brief in connection with the above-identified application. A Notice of Appeal was electronically filed on January 30, 2007.

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I. REAL PARTY IN INTEREST

The real party in interest is the Hewlett-Packard Development Company (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas. HPDC is a wholly owned affiliate of Hewlett-Packard Company (HPC). HPC merged with Compaq Computer Corporation (CCC) which owned Compaq Information Technologies Group, L.P. (CITG). The Assignment from the inventors to CITG was recorded on September 28, 2001, at Reel/Frame 012221/0957. The Change of Name document was recorded on May 12, 2004, at Reel/Frame 014628/0103.

II. RELATED APPEALS AND INTERFERENCES

This appeal is related to the currently pending appeal of application Serial No. 09/966,064 (HP ref. 200302158-1; CR ref. 1662-41100).

Appl. No. 09/965,998
Appeal Brief dated January 30, 2007
Reply to Office action of November 6, 2007

III. STATUS OF THE CLAIMS

Originally filed claims:	1-29.
Claim cancellations:	1-16, 19-29.
Added claims:	30-33.
Presently pending claims:	17-18 and 30-33.
Presently appealed claims:	17-18 and 30-33.

IV. STATUS OF THE AMENDMENTS

The Office action of November 6, 2006, though at least a second rejection on the merits, was non-final. Appellants filed a Response on January 29, 2007 to address the Section 112 rejections, and thus to put the case in better condition for appeal. The listing of claims in this Appeal Brief reflects the amendments in the Response of January 29, 2007.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The specification is directed to a semi-persistent relocatable RAM-based virtual floppy disk method.[1] At least some of the illustrative embodiments are a read only memory (ROM) device as in claim 17 comprising a basic input output system (BIOS) program,[2] and hardware drivers.[3] The BIOS program, when executed by a microprocessor, makes at least some of the hardware drivers available for copying by identifying the hardware drivers on the ROM as files on a virtual disk drive,[4] and the BIOS program, when executed by a microprocessor, makes available on the virtual disk drive only the hardware drivers operable with an operating system to be installed.[5]

Other illustrative embodiments are computer systems as in claim 30 comprising a processor,[6] a main memory array coupled to the processor,[7] and a read only memory (ROM) coupled to the processor[8] (wherein the ROM stores basic input output system (BIOS) programs and operating system drivers).[9] The BIOS programs of the ROM implement a virtual disk drive by mapping at least some of the operating system drivers to virtual address space of the main memory array, the mapped operating system drivers operable in conjunction with an operating system identified during initial set up of the BIOS.[10] During installation of an operating system on the computer at least one of the operating system drivers is copied from the virtual disk drive, and after installation of the

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[1] Specification Title.

[2] Specification Page 7, Paragraph [0026], lines 2-5. Hereinafter, citations to the specification take the shorthand form ([page], [paragraph], lines). Thus, the cite of this footnote in the shorthand form reads (7, [0026], lines 2-4). *See also*, Figures 3-6.

[3] (8, [0029], lines 2-6); Figures 3-6.

[4] (13, [0041], lines 1-7).

[5] (13, [0041], lines 8-11).

[6] (5, [0022], lines 1-2); Figure 1 element 10.

[7] (6, [0023], lines 1-4); Figure 1, element 12.

[8] (6, [0026], lines 2-5); Figure 1, element 26.

[9] (7, [0026], lines 2-4); (8, [0029], lines 2-6); Figures 3-6); Figure 3-6, elements 30, 32.

[10] (14, [0043], lines 1-15); Figure 7.

operating system the operating system drivers on the virtual disk drive are overwritten with a redundant copy of the BIOS.[11]

Yet still other illustrative embodiments are methods as in claim 32 comprising storing operating system drivers on a read only memory (ROM) within a computer system,[12] identifying an operating system to be installed on the computer system (the identifying during initial basic input output system (BIOS) set up),[13] invoking BIOS routines to make available on a virtual disk drive operating system drivers stored on the ROM,[14] and copying from the virtual disk drive only operating system drivers operable with the identified operating system.[15]

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[11] (10, [0035], lines 7-14); Figure 5.

[12] (8, [0029], lines 2-6); Figures 3-6.

[13] (12, [0040], lines 1-5).

[14] (13, [0041], lines 1-7).

[15] (13, [0041], lines 8-11).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 17-18 are obvious under 35 USC § 103 over Alcorn (U.S. Pat. No. 6,106,396), Wu (U.S. Pat. No. 6,401,140), Madden (U.S. Pat. No. 6,178,503) and Agnihotri (U.S. 6,743,456).

Whether claim 30 is obvious under 35 USC § 103 over Alcorn, Wu and Angelo (U.S. Pat. No. 5,974,250)

Whether claim 31 is obvious under 35 USC § 103 over Alcorn, Wu and Angelo, Madden and Agnihotri.

Whether claim 32 is obvious under 35 USC § 103 over Alcorn and Galasso (U.S. Pat. No. 6,892,304).

Whether claim 33 is obvious under 35 USC § 103 over Alcorn, Galasso and Puckette (U.S. Pat. No. 6,385,721).

VII. ARGUMENT

A. The Office Action Improperly Construes the Term "Installation"

With regard to claim interpretation, the Manual of Patent Examining Procedures (MPEP) states:

> During patent examining, the pending claims must be "given their broadest reasonable interpretation **consistent with the specification.**"[16]

The Office action of November 6, 2006 takes an interpretation of the claim terminology that is inconsistent with the specification.

Appellants' specification contains several embodiments related to providing operating system drivers to the computer system when the operating system is installed. The Office action of November 6, 2006 takes the position that "installation" and "installed" includes run-time booting of previously installed operating systems. However, this interpretation is inconsistent with the specification. Appellants' Figure 5, reproduced immediately below, discusses one possible embodiment.

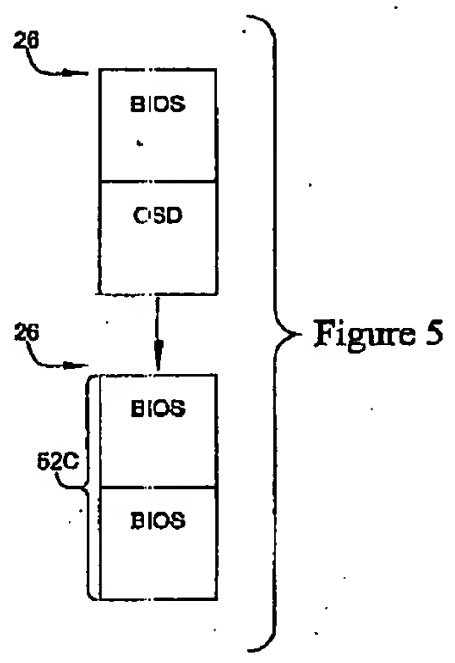

Figure 5

In particular, Figure 5 illustrates that, before the installation of the operating system on the computer system, the ROM 26 contains a copy of the basic input

[16] MPEP 8th, Rev. 3, August 2005, § 2111, p. 2100-46 (emphasis added).

output system (BIOS) as well as a copy of the operating system drivers (OSD).[17] During the installation of the operating system, drivers are provided from the OSD section of the ROM.[18] However, once the operating system is installed on the computer system, the drivers are overwritten to provide redundant BIOS.

> [O]nce the operating system drivers have been provided during installation of the operating system, **a utility program copies the BIOS, provided only in non-redundant fashion initially, to the second half of the ROM 26. By copying the BIOS over the operating system drivers, a redundant BIOS system is provided, as shown in the lower ROM 26 of Figure 5.**[19]
>
> While this implementation provides both the redundant BIOS, after operating system installation, and also provides operating system drivers on the ROM, **the operating system drivers are overwritten and thus will not be available if the operating system must be installed again.**[20]

To be fully consistent with the specification, particularly the embodiments discussed with respect to Figure 5, "installation" in the specification and claims refers to initial installation onto the computer system. The term "installation" cannot include the "run-time" booting of a previously installed operating system, because such an interpretation renders inoperable the embodiments discussed with respect to Figure 5. That is, if "installation" is run-time booting of a previously installed operating system, the second and subsequent attempts to boot the operating system the operating system drivers will be unavailable because they were overwritten in the ROM.

Thus, the interpretation of the Office action that "installation" includes "run-time" booting of previously installed operating systems is inconsistent with the specification and is therefore improper. As will be discussed more below, when the interpretation of the term "installation" that is fully consistent with the specification is applied, the various rejections are clearly improper.

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[17] (10, [0035], lines 1-5).

[18] *Id.*

[19] (10, [0035], 7-11 (emphasis added)); Figure 5.

[20] (10, [0035], 11-14 (emphasis added)).

B. Section 103 rejections over Alcorn, Wu, Madden and Agnihotri

Claims 17-18 stands rejected as allegedly obvious over Alcorn, Wu, Madden and Agnihotri. Claim 17 is representative of this grouping of claims. The grouping should not be construed to mean the patentability of any of the claims may be determined in later actions (*e.g.*, actions before a court) based on the groupings. Rather, the presumption of 35 USC § 282 shall apply to each of these claims individually.

Alcorn is directed to an electronic casino gaming system with improved play capability, authentication and security.[21] In particular, Alcorn describes a casino game where, to prevent tampering with the programs that run the casino game, important programs are stored on unalterable ROM and in some cases broken up across two such ROMS.[22] Two such important programs are the operating system and system drivers.[23] Rather than boot the casino game from an operating system stored on easily alterable memory such as the disk storage, after verifying that the operating system program and drivers have not been altered, the operating system is booted from the ROM. Thus, Alcorn is not concerned with installation of an operating system; but rather, Alcorn is concerned with verifying and then booting a previously installed operating system.

Wu is directed to an apparatus and method for booting a computer operating system from an intelligent input/output device having no option ROM and with a virtual option ROM stored in the computer.[24] In particular, computer systems may implement one or more Intelligent Input/Output (I_2O) Architecture Specification compliant devices (such as a disk drive controller coupled to a disk drive). I_2O devices communicate with the main system utilizing platform independent drivers that execute on the I_2O devices (HDM 12), and platform dependent drivers (OSM 11) that execute on the main processor.[25] However,

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[21] Alcorn Title.

[22] Alcorn Col. 7, lines 17-35.

[23] *Id.*; Figure 2.

[24] Wu Title.

[25] Wu Col. 1, lines 9-26; Figure 1.

when an I_2O device does not have an option ROM, prior to booting of the operating system the BIOS is unaware of how to establish communication to the I_2O device, and the computer system cannot boot from the device if communication cannot be established.[26] In order to address this problem, Wu discloses a system where a "virtual option ROM" is implemented in the ROM so that the BIOS can establish communication and boot the computer system from the I_2O device.[27] Again here, Wu is not concerned with installing of an operating system; but rather, Wu is concerned with how to boot a previously installed operating when the operating system is available on an I_2O device.

Madden is directed to managing multiple operating systems on a single computer.[28] In particular, Madden discloses a graphical user interface that allows a user to select from a plurality of operating systems and/or operating system modes with which to boot a computer system.[29] The multiple operating systems with which to boot the computer system reside on the Madden disk 124 in different directories, and the selected operating system is copied from its respectively directory to the root directory.[30] Here again, the operating system selected and booted is clearly previously installed.

Agnihotri is directed to a self correcting server with automatic error handling.[31] In particular, Agnihotri is directed to a server that automatically and repeatedly attempts to boot the server system.[32] Once again, the automatic booting is booting a previously installed operating system.

Claim 17, by contrast, specifically recites, "A read only memory (ROM) device comprising: a basic input output system (BIOS) program; and hardware drivers; wherein the BIOS program, when executed by a microprocessor, makes

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[26] Wu Col. 1, lines 59-65.

[27] Wu Col. 4, lines 12-44.

[28] Madden Title.

[29] Madden Col. 5, lines 3-9.

[30] Madden Col. 8, lines 47-59.

[31] Agnihotri Title.

[32] Agnihotri Abstract.

at least some of the hardware drivers available for copying by identifying the hardware drivers on the ROM as files on a virtual disk drive; and wherein the BIOS program, when executed by a microprocessor, makes available on the virtual disk drive only the hardware drivers operable with an operating system to be installed." Appellants respectfully submit that the cited art does not teach or suggest such a system. As discussed above, the only interpretation of "installation" or "installed" that is consistent with all the embodiments of the specification is installation of the operating system onto a computer system, not the run-time booting of previously installed operating systems. The cited references are directed to booting of previously installed operating systems, and thus Alcorn, Wu, Madden and Agnihotri fail to teach "wherein the BIOS program ... makes available ... the hardware drivers [on a ROM device] operable with an operating system **to be installed.**"

Based on the foregoing, Appellants respectfully submit that the rejections of the claims in this first grouping be reversed, and the claims set for issue.

C. Section 103 rejections over Alcorn, Wu and Angelo

Claim 30 stands rejected as allegedly obvious over Alcorn, Wu and Angelo.

Angelo is directed to a system and method for secure information transmission over a network.[33] In particular, the location cited by the Office action is directed to Angelo's Background section, stating:

> There have been solutions for updating a BIOS image associated with a processor without having to replace the ROM-BIOS at a provider's site. For example, U.S. Pat. No. 5,388,267 discloses a method and apparatus for updating and restoring BIOS functions while maintaining BIOS integrity. **There, a computer is provided with a Flash EPROM for the BIOS in addition to a UV-EPROM containing a redundant copy thereof. The redundant BIOS can be overlaid onto the BIOS address space by selection with a physical switch provided with the computer.**[34]

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[33] Angelo Title.

[34] Angelo Col. 1, lines 48-57 (emphasis added).

Clearly in Angelo the redundant copy of the BIOS is stored on a different device (an UV-EPROM) than the primary copy (Flash EPROM).

Claim 30, by contrast, specifically recites, "a read only memory (ROM) coupled to the processor, wherein the ROM stores basic input output system (BIOS) programs and operating system drivers; ... wherein after installation of the operating system the operating system drivers are overwritten with a redundant copy of the BIOS." Appellants respectfully submit that the cited art fails to teach or suggest such a system. The Office action takes the position that "installation" includes the run-time booting of a previously installed operating system; however, if "installation" is construed to be the run-time booting of a previously installed operating system, in systems such as claimed in claim 30 on the second and subsequent attempts to boot the operating system the operating system drivers will be unavailable because they were overwritten in the ROM. Thus, properly construed, "installation" refers to initial installation onto the computer system, and not "run-time" booting of a previously installed operating system. When the proper construction is used, the cited art fails to teach or suggest such a system. For this reason alone the rejection should be reversed and the claim set for issue.

Moreover, the Office action relies on Angelo for an alleged teaching of redundant copies of the BIOS; however, in Angelo the redundant copies are stored on different physical devices. Thus, even if hypothetically the teachings of Alcorn and Wu are precisely as the Office action suggests (which Appellants to do not admit), Alcorn, Wu and Angelo still fail to teach "a read only memory (ROM) coupled to the processor, wherein the ROM stores basic input output system (BIOS) programs and operating system drivers; ... wherein after installation of the operating system the operating system drivers are overwritten with a redundant copy of the BIOS."

Based on the foregoing, Appellants respectfully submit that the rejections of claim 30 be reversed, and the claim set for issue.

D. Section 103 rejections over Alcorn, Wu and Angelo, Madden and Agnihotri

Claim 31 stands rejected as allegedly obvious over Alcorn, Wu, Angelo, Madden and Agnihotri. Based on the reasons discussed in Section VII(C), the rejections of claim 31 (which depends from claim 30) should be reversed, and the claims set for issue.

E. Section 103 rejections over Alcorn and Galasso

Claim 32 stands rejected as allegedly obvious over Alcorn and Galasso.

Claim 32 specifically recites, "identifying an operating system to be installed on the computer system, the identifying during initial basic input output system (BIOS) set up; ... copying from the virtual disk drive only operating system drivers operable with the identified operating system." Appellants respectfully submit that the cited art fails to teach or suggest such a system. In particular, with regard to "initial basic input output system (BIOS) set up" Appellants state:

> [A] set of operating system drivers (34, 36, 38 of Figure 6) ... are provided in the ROM 26. These multiple sets of operating system drivers are provided to account for the fact that **a manufacturer may not know at the time of building the computer system what operating system will be installed thereon**. ... In the preferred embodiments, making available the correct operating system drivers for the operating system is preferably accomplished by a BIOS setup parameter... .[35]
>
> [T]he BIOS setup routines are modified to contain a field where a user, when making an initial setup of the BIOS, selects which operating system is to be installed on the computer or server. It must be understood that this selection in the BIOS is not a part of the operating system installation procedure; but rather, is merely a mechanism to inform the BIOS which operating system is to be installed.[36]

Thus, clearly in the context of the specification and the claim "identifying an operating system to be installed on the computer system, the identifying during

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[35] (12, [0039], lines 1-9 (emphasis added)).

[36] (12, [0040], lines 1-5).

initial basic input output system (BIOS) set up" is informing the computer system BIOS which operating system is to be installed, as that term has been previously described, and not merely finding a previously installed operating system as suggested by the Office action. Alcorn is directed to operations regarding a previously installed operating system. Thus, even if hypothetically the teachings of Galasso are precisely as the Office action suggests (which Appellants do not admit), Alcorn and Galasso still fail to teach "identifying an operating system to be installed on the computer system, the identifying during initial basic input output system (BIOS) set up; ... copying from the virtual disk drive only operating system drivers operable with the identified operating system."

Based on the foregoing, Appellants respectfully submit that the rejections of claim 32 be reversed, and the claim set for issue.

F. Section 103 rejections over Alcorn, Galasso and Puckette

Claim 33 stands rejected as allegedly obvious over Alcorn, Galasso and Puckette. Based on the reasons discussed in Section VII(E), the rejections of claim 33 (which depends from claim 32) should be reversed, and the claims set for issue.

VIII. CONCLUSION

For the reasons stated above, Appellants respectfully submit that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be

charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

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IX. CLAIMS APPENDIX

1. – 16. (Cancelled).

17. (Previously presented) A read only memory (ROM) device comprising:

a basic input output system (BIOS) program; and

hardware drivers;

wherein the BIOS program, when executed by a microprocessor, makes at least some of the hardware drivers available for copying by identifying the hardware drivers on the ROM as files on a virtual disk drive; and

wherein the BIOS program, when executed by a microprocessor, makes available on the virtual disk drive only the hardware drivers operable with an operating system to be installed.

18. (Previously presented) The ROM device as defined in claim 17 wherein the hardware drivers further comprise:

a first set of hardware drivers for use with a first type operating system;

a second set of hardware drivers for use with a second type operating system; and

wherein the BIOS program makes only the first set of hardware drivers available during installation of the first type operating system, and wherein the BIOS program makes only the second set of hardware drivers available during installation of the second type operating system.

19.-29. (Cancelled).

30. (Previously presented) A computer system comprising:

a processor;

a main memory array coupled to the processor; and

a read only memory (ROM) coupled to the processor, wherein the ROM stores basic input output system (BIOS) programs and operating system drivers;

wherein the BIOS programs of the ROM implement a virtual disk drive by mapping at least some of the operating system drivers to virtual address space of the main memory array, the mapped operating system drivers operable in conjunction with an operating system identified during initial set up of the BIOS;

wherein during installation of an operating system on the computer at least one of the operating system drivers is copied from the virtual disk drive; and

wherein after installation of the operating system the operating system drivers are overwritten with a redundant copy of the BIOS.

31. (Previously presented) The computer system as defined in claim 30 wherein the operating system drivers comprise a first set of operating system drivers for use a first operating system and a second set of operating system drivers for a second operating system, and wherein when the BIOS programs implement the virtual disk drive the BIOS programs configure the virtual disk drive to appear to store only the first set of operating system drivers if the first operating system is being installed.

32. (Previously presented) A method comprising:

storing operating system drivers on a read only memory (ROM) within a computer system;

identifying an operating system to be installed on the computer system, the identifying during initial basic input output system (BIOS) set up;

invoking BIOS routines to make available on a virtual disk drive operating system drivers stored on the ROM; and

copying from the virtual disk drive only operating system drivers operable with the identified operating system.

33. (Previously presented) The method as defined in claim 32 wherein invoking further comprises:

invoking interrupt 13h BIOS routines directed to the virtual disk drive; and

returning a file name for at least one of the operating system drivers by the interrupt 13h BIOS routines as if the operating system drivers resided on the virtual disk drive.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.